# Earnings in the last decade

*René Morissette*

The last decade has seen many changes that may have affected earnings of Canadian workers. The proliferation of information and communication technologies and the fast-growing supply of relatively skilled workers in low-wage countries have allowed Canadian firms to contract out highly skilled jobs in services such as engineering and informatics, increasing international trade in relatively sophisticated commercial services. Likewise, trade in goods produced by non-OECD countries has been growing sharply. As a result, Canadian workers have faced growing international competition, not only from relatively skilled workers in service industries but also from less skilled ones in goods-producing industries. This expansion of international trade with non-OECD countries has opened new markets for Canadian firms, potentially stimulating employment and earnings growth in some sectors of the economy.

Along with these changes in trade patterns and technology use, demographic trends also influenced labour market conditions and earnings, as retirements increased even as the participation rate of older workers started rising in the late 1990s. More recently, the appreciation of the Canadian dollar and the job losses in manufacturing may have tended to pull earnings down in this industry. In contrast, Alberta's economic boom and the downward trend in unemployment in several other provinces may have created upward pressures.

Recent years have also witnessed sharp growth at the top of the Canadian earnings distribution (Saez and Veall 2005), a phenomenon also observed in the United States. While the factors underlying this trend are still largely unknown (Lemieux 2007), it has been argued that the strong earnings increases for highly paid workers might have been implemented to dissuade highly talented executives and professionals from moving to the United States.

The article uses the Labour Force Survey to examine the evolution of earnings in Canada from 1997 to 2007 (see *Data source and definitions*). Did earnings grow at the same pace in all provinces? Did they fall in manu-

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**Data source and definitions**

The Labour Force Survey (LFS), since 1997, has collected information on the usual wage or salary of employees at their main jobs. Respondents are asked to report their earnings, including tips and commissions, before taxes and other deductions. Average weekly and hourly earnings are calculated based on usual paid hours per week. Average earnings based on distributions can then be cross-tabulated by earnings and characteristics such as age, sex, education, occupation, and union status.

The LFS sample is representative of the civilian, non-institutionalized population 15 years of age or older. Excluded from the survey's coverage are persons living on reserves and other Aboriginal settlements in the provinces, full-time members of the Canadian Armed Forces and the institutionalized population. These groups together represent approximately 2% of the population aged 15 and over.

Unless otherwise specified, the sample used consists of individuals aged 15 to 64 who are employees in their main jobs (i.e. the one involving the most usual hours per week) and who live in one of the ten provinces. Full-time students are excluded. An alternative sample consisting only of private-sector employees aged 15 to 64 is also used in some instances. Unless otherwise noted, January to November averages are used.

The public sector covers employees in public administration at all levels, Crown corporations, liquor control boards and other government institutions such as schools (including universities), hospitals and public libraries. The private sector comprises all other employees and self-employed owners of businesses (including unpaid family workers in those businesses), and self-employed persons without businesses.

Hourly earnings are in 2002 dollars using province-specific consumer price indexes (all items).

facturing and rise among highly skilled workers? Did the percentage of low-paid jobs fall? Did highly paid jobs become more prevalent?

## Overall trends

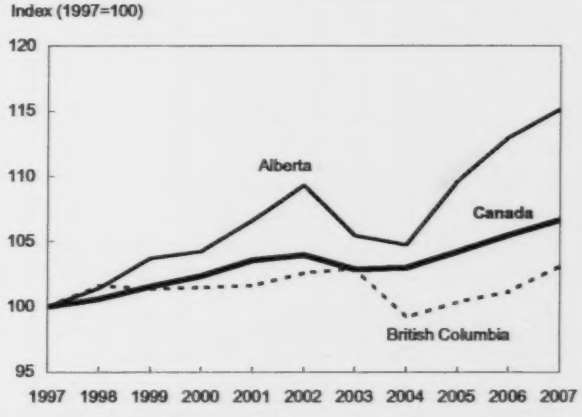
Average hourly earnings rose 6% in real terms over the last decade, from $17.68 (2002 $) in 1997 to $18.80 in 2007 (Table 1). In the private sector, they grew by roughly 7%. They trended upwards between 1997 and 2001, remained virtually constant between 2001 and 2004 and then rose again (Chart A).

Growth rates in the private sector differed markedly by province. While Alberta enjoyed by far the strongest growth (15%), Newfoundland and Labrador, Nova Scotia and Saskatchewan had rates hovering around 11%. In contrast, average earnings grew only 3% in British Columbia. In many provinces, much of the growth occurred between 2004 and 2007. Similar patterns are observed when all industries are considered.

While average earnings of private-sector employees increased by about 7% nationwide, their median earnings rose roughly 5%. The median changed very little in Ontario and British Columbia, but increased by 10% or more in Nova Scotia, Saskatchewan and Alberta.

The strong increases observed in Alberta over the last decade had a clear impact on the province's earnings distribution. The proportion of jobs paying less than $10 per hour (in 2002 $) fell by fully 10 percentage points, dropping to 12% in 2007 (Table 2). Conversely, high-paying jobs became more prevalent, as the proportion of jobs paying at least $25 per hour rose by 7 points.

**Chart A Average earnings in Alberta's private sector grew sharply after 2004**




Source: Statistics Canada, Labour Force Survey, March and September.

This upward shift in the wage distribution was evident in most provinces—Newfoundland and Labrador, Ontario and British Columbia being the exceptions. While these provinces increased their share of jobs paying at least $25 on an hourly basis, they did not markedly reduce the incidence of low-paid employment (proxied by the proportion of jobs paying less than $10 per hour). For instance, close to one-third of jobs in Newfoundland and Labrador paid less than $10 per hour in both 1997 and 2007, even though the relative importance of high-paying jobs increased by 7 percentage points.[1] In Ontario, 17% of jobs paid less than $10 per hour in 2007, compared with 16% in 1997.

**Table 1 Average hourly earnings by province**

| | All industries | | | Private sector | | |
|---|---|---|---|---|---|---|
| | 1997 | 2007 | Change | 1997 | 2007 | Change |
| | 2002 $ | | % | 2002 $ | | % |
| **Canada** | 17.68 | 18.80 | 6.3 | 16.34 | 17.43 | 6.7 |
| Newfoundland and Labrador | 14.51 | 16.00 | 10.3 | 12.53 | 14.02 | 11.9 |
| Prince Edward Island | 13.30 | 14.45 | 8.7 | 11.15 | 12.21 | 9.4 |
| Nova Scotia | 14.53 | 15.98 | 10.0 | 12.97 | 14.36 | 10.8 |
| New Brunswick | 14.51 | 15.43 | 6.4 | 12.96 | 13.74 | 6.0 |
| Quebec | 17.23 | 18.00 | 4.5 | 15.63 | 16.48 | 5.5 |
| Ontario | 18.71 | 19.77 | 5.6 | 17.40 | 18.34 | 5.4 |
| Manitoba | 15.69 | 17.00 | 8.3 | 14.09 | 15.28 | 8.4 |
| Saskatchewan | 15.63 | 17.30 | 10.7 | 13.98 | 15.53 | 11.1 |
| Alberta | 17.23 | 19.54 | 13.4 | 16.34 | 18.71 | 14.5 |
| British Columbia | 18.58 | 19.11 | 2.9 | 17.19 | 17.74 | 3.2 |

Source: Statistics Canada, Labour Force Survey, January to November.

**Table 2 Hourly earnings distribution by province (2002 $)**

| | Jobs paying | | | | |
|---|---|---|---|---|---|
| | Less than $10.00 | $10.00 to $14.99 | $15.00 to $19.99 | $20.00 to $24.99 | $25.00 or more |
| | | | % | | |
| **Canada** | | | | | |
| 1997 | 20.1 | 24.7 | 21.8 | 15.6 | 17.9 |
| 2007 | 18.0 | 23.8 | 22.2 | 13.7 | 22.2 |
| Newfoundland and Labrador | | | | | |
| 1997 | 32.7 | 28.1 | 16.8 | 12.7 | 9.6 |
| 2007 | 32.3 | 22.8 | 17.3 | 10.6 | 16.9 |
| Prince Edward Island | | | | | |
| 1997 | 38.5 | 30.4 | 16.7 | 9.1 | 5.3 |
| 2007 | 33.6 | 29.7 | 18.1 | 8.8 | 9.9 |
| Nova Scotia | | | | | |
| 1997 | 31.0 | 29.8 | 17.8 | 12.4 | 9.1 |
| 2007 | 27.8 | 26.4 | 20.1 | 11.5 | 14.3 |
| New Brunswick | | | | | |
| 1997 | 33.5 | 27.9 | 17.3 | 12.2 | 9.2 |
| 2007 | 27.5 | 32.2 | 16.8 | 10.3 | 13.2 |
| Quebec | | | | | |
| 1997 | 21.8 | 25.4 | 22.3 | 14.0 | 16.5 |
| 2007 | 18.6 | 25.6 | 23.7 | 13.3 | 18.8 |
| Ontario | | | | | |
| 1997 | 15.9 | 24.2 | 22.4 | 16.4 | 21.2 |
| 2007 | 17.4 | 21.4 | 21.9 | 13.5 | 25.9 |
| Manitoba | | | | | |
| 1997 | 27.5 | 26.3 | 21.1 | 13.2 | 11.8 |
| 2007 | 21.4 | 28.1 | 21.0 | 12.8 | 16.6 |
| Saskatchewan | | | | | |
| 1997 | 27.1 | 27.5 | 19.8 | 14.0 | 11.6 |
| 2007 | 21.2 | 24.6 | 23.0 | 13.6 | 17.6 |
| Alberta | | | | | |
| 1997 | 21.8 | 26.4 | 20.3 | 14.4 | 17.0 |
| 2007 | 11.8 | 27.8 | 21.6 | 14.3 | 24.4 |
| British Columbia | | | | | |
| 1997 | 17.1 | 20.0 | 23.5 | 19.8 | 19.6 |
| 2007 | 16.3 | 21.1 | 23.6 | 16.6 | 22.4 |

Source: Statistics Canada, Labour Force Survey, January to November.

Average earnings grew at a different pace not only provincially, but also by position in the overall distribution. In the private sector as well as in the whole economy, earnings rose by 1% to 6% in the lower half of the earnings distribution, compared with close to 12% in the top 5% of the distribution (Chart B). Within the upper halves of their distributions, earnings of men and women also grew at increasing rates in the upper reaches, suggesting that inequality grew within the upper half of each distribution.[2]

Yet, the degree to which average earnings grew at the top and the bottom of the distribution differed markedly across provinces. In Ontario, earnings rose roughly 10% in the top tenth but fell up to 5% in the bottom tenth (Chart C). In contrast, pay rates in Alberta increased 12% to 15% in the top tenth but even more (up to 17%) in the bottom. In fact, growth across the earnings distribution displayed a U-shape everywhere except Ontario. At the very least, this suggests that earnings inequality did not evolve in a uniform manner in all provinces over the last decade. Nevertheless, within the upper half of each region-specific distribution, earnings generally tended to grow faster as one moved upward on the pay scale, suggesting a growing dispersion in this portion of the distribution.

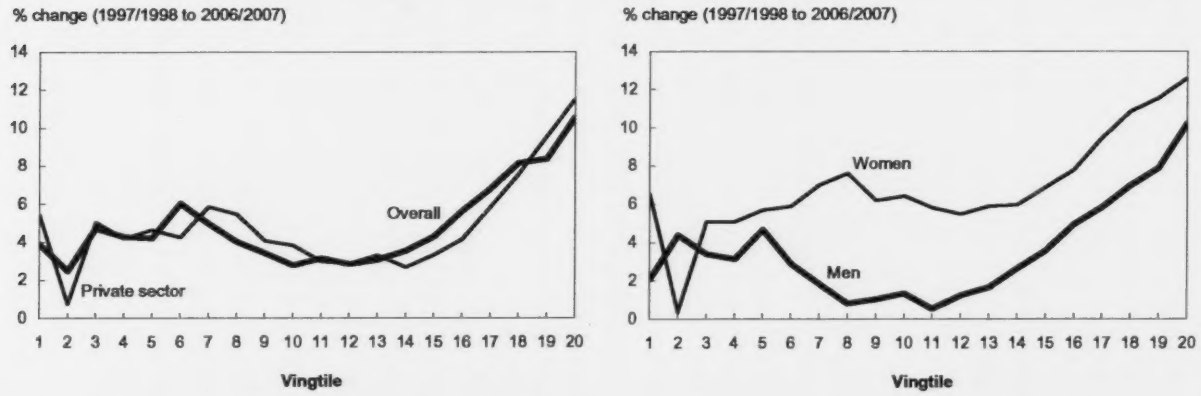
## Industry-specific trends

The relatively strong increases in the upper reaches of the top half of the earnings distribution were observed in most industries.[3] Earnings in the top 5% grew between 9 and 12 percentage points faster than in the middle in primary industries and construction, manufacturing, low-skilled services and highly skilled services (Chart D). Whatever the underlying factors, this pattern suggests that in several sectors of the economy pay rates rose substantially for some highly skilled workers over the last decade.[4]

While growth differed substantially along the distribution within a given industry, it varied moderately between industries. Average earnings grew between 8% and 10% in primary industries and construction, highly skilled services, and wholesale trade and other services (Table 3). This is about twice the rate in manufacturing, low-skilled services and public services.

Somewhat greater variations were observed in manufacturing. Manufacturing employees in Alberta saw their average earnings increase by 9% between 1997/1998 and 2006/2007 (Table 4). In contrast, their counterparts in British Colum-

**Chart B Earnings growth was strongest at the top of the wage distribution**

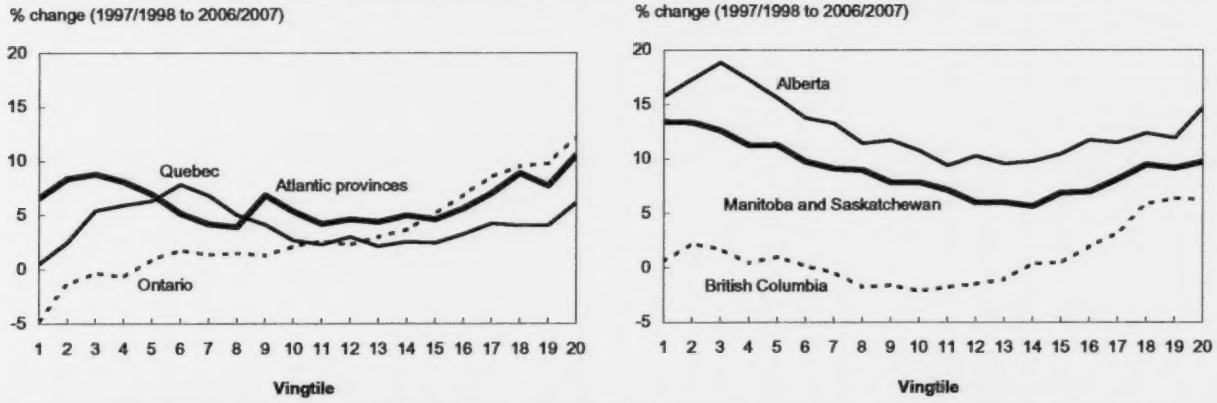



Source: Statistics Canada, Labour Force Survey, January to November.

bia experienced a drop of 3%.[5] Growth was moderate for manufacturing workers in the rest of Canada; most regions experienced either mild growth in average manufacturing wages or relatively little change in median manufacturing wages.

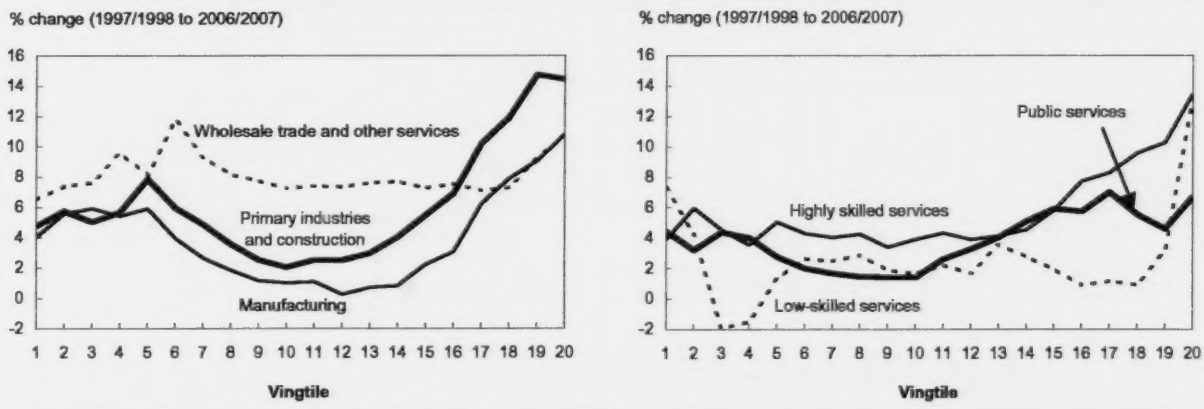
These relatively small changes (average and median) are noteworthy in light of the substantial job losses in manufacturing since 2004. In both Quebec and Ontario, manufacturing employment fell by at least 14% between 2004 and 2007 (Chart E), yet earnings varied very little. This suggests that, in these two

**Chart C Earnings growth by vingtile differed markedly across regions**




Source: Statistics Canada, Labour Force Survey, January to November.

## Chart D Earnings growth at the top was strong in most industries




Source: Statistics Canada, Labour Force Survey, January to November.

## Table 3 Hourly earnings by industry (2002 $)

| | Earnings | | Jobs paying | | | | |
|---|---|---|---|---|---|---|---|
| | Mean | Median | Less than $10.00 | $10.00 to $14.99 | $15.00 to $19.99 | $20.00 to $24.99 | $25.00 or more |
| **Industry** | $ | | | | % | | |
| Primary industries and construction | | | | | | | |
| 1997 | 20.20 | 19.82 | 15.5 | 17.2 | 18.4 | 21.3 | 27.6 |
| 2007 | 22.01 | 20.46 | 13.2 | 16.2 | 19.1 | 17.8 | 33.7 |
| Manufacturing | | | | | | | |
| 1997 | 18.17 | 16.70 | 14.6 | 25.7 | 23.6 | 19.2 | 16.9 |
| 2007 | 18.99 | 17.02 | 12.7 | 26.4 | 24.7 | 15.1 | 21.1 |
| Highly skilled services | | | | | | | |
| 1997 | 18.41 | 16.66 | 14.5 | 27.2 | 23.8 | 15.9 | 18.5 |
| 2007 | 19.94 | 17.51 | 12.5 | 25.1 | 23.7 | 14.8 | 23.9 |
| Low-skilled services | | | | | | | |
| 1997 | 11.97 | 9.91 | 50.9 | 27.0 | 11.8 | 6.3 | 4.0 |
| 2007 | 12.43 | 10.21 | 48.8 | 28.4 | 12.6 | 5.0 | 5.2 |
| Wholesale trade and other services | | | | | | | |
| 1997 | 17.24 | 15.78 | 19.4 | 26.9 | 22.3 | 15.0 | 16.5 |
| 2007 | 18.91 | 17.18 | 14.6 | 24.7 | 23.1 | 15.6 | 22.1 |
| Public services | | | | | | | |
| 1997 | 20.66 | 19.19 | 7.9 | 19.6 | 26.4 | 18.6 | 27.5 |
| 2007 | 21.56 | 19.63 | 7.5 | 18.4 | 26.1 | 16.2 | 31.8 |
| Computer and telecommunications sector | | | | | | | |
| 1997 | 21.70 | 20.11 | 7.8 | 19.0 | 22.1 | 20.1 | 31.0 |
| 2007 | 24.37 | 22.46 | 5.6 | 16.4 | 18.8 | 17.2 | 41.9 |

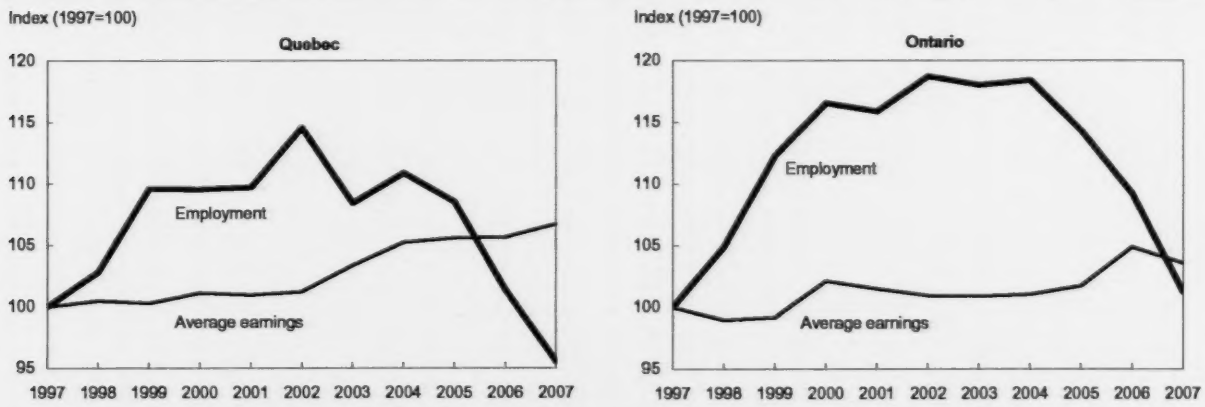
Source: Statistics Canada, Labour Force Survey, January to November.

**Table 4 Hourly earnings in manufacturing by region (2002 $)**

| | Earnings | | Jobs paying | | | | |
|---|---|---|---|---|---|---|---|
| | Mean | Median | Less than $10.00 | $10.00 to $14.99 | $15.00 to $19.99 | $20.00 to $24.99 | $25.00 or more |
| | $ | | | | % | | |
| **Canada** | | | | | | | |
| 1997/1998 | 18.18 | 16.70 | 15.1 | 25.2 | 23.7 | 18.7 | 17.3 |
| 2006/2007 | 19.01 | 17.02 | 12.3 | 27.0 | 24.3 | 15.7 | 20.7 |
| Atlantic provinces | | | | | | | |
| 1997/1998 | 15.13 | 13.32 | 27.7 | 30.2 | 19.0 | 13.5 | 9.6 |
| 2006/2007 | 15.60 | 13.61 | 23.0 | 34.5 | 20.3 | 11.0 | 11.1 |
| Quebec | | | | | | | |
| 1997/1998 | 16.63 | 15.14 | 21.4 | 28.0 | 22.7 | 15.4 | 12.5 |
| 2006/2007 | 17.61 | 15.64 | 15.0 | 30.3 | 25.6 | 13.2 | 15.9 |
| Ontario | | | | | | | |
| 1997/1998 | 19.31 | 17.94 | 10.3 | 23.5 | 25.9 | 19.8 | 20.5 |
| 2006/2007 | 20.24 | 17.97 | 10.1 | 23.8 | 24.9 | 16.1 | 25.1 |
| Manitoba and Saskatchewan | | | | | | | |
| 1997/1998 | 15.33 | 14.33 | 26.5 | 26.8 | 25.3 | 12.7 | 8.6 |
| 2006/2007 | 15.96 | 14.57 | 16.6 | 36.3 | 25.0 | 13.2 | 9.0 |
| Alberta | | | | | | | |
| 1997/1998 | 18.15 | 16.29 | 14.9 | 29.7 | 20.2 | 16.5 | 18.6 |
| 2006/2007 | 19.83 | 17.81 | 6.6 | 29.1 | 23.5 | 18.8 | 22.1 |
| British Columbia | | | | | | | |
| 1997/1998 | 20.20 | 20.59 | 8.4 | 19.2 | 19.4 | 29.7 | 23.3 |
| 2006/2007 | 19.62 | 18.50 | 12.0 | 23.2 | 19.3 | 22.8 | 22.7 |

Source: Statistics Canada, Labour Force Survey, January to November.

**Chart E Despite recent decreases in employment, average earnings held steady in Quebec and Ontario manufacturing**




Source: Statistics Canada, Labour Force Survey, March and September.

provinces, manufacturing firms that suffered a decline in demand for their product adjusted mainly through layoffs rather than wage changes.

A similar story emerges in the computer and telecommunications (CT) sector.[6] As employment in this sector rose a solid 39% between 1997 and 2001, average earnings rose 10%. Employment then fell 15% between 2001 and 2005 before increasing again. Meanwhile, earnings changed very little. As a result, they ended up growing 12% between 1997 and 2007, almost twice the rate in the private sector.[7]

This meant that in 2007, employees in the CT sector earned $24.37 per hour, on average, for their labour services. This is about twice the rate of their counterparts employed in low-skilled services and about $7 more than the average in the private sector.

## Low pay in manufacturing and low-skilled services

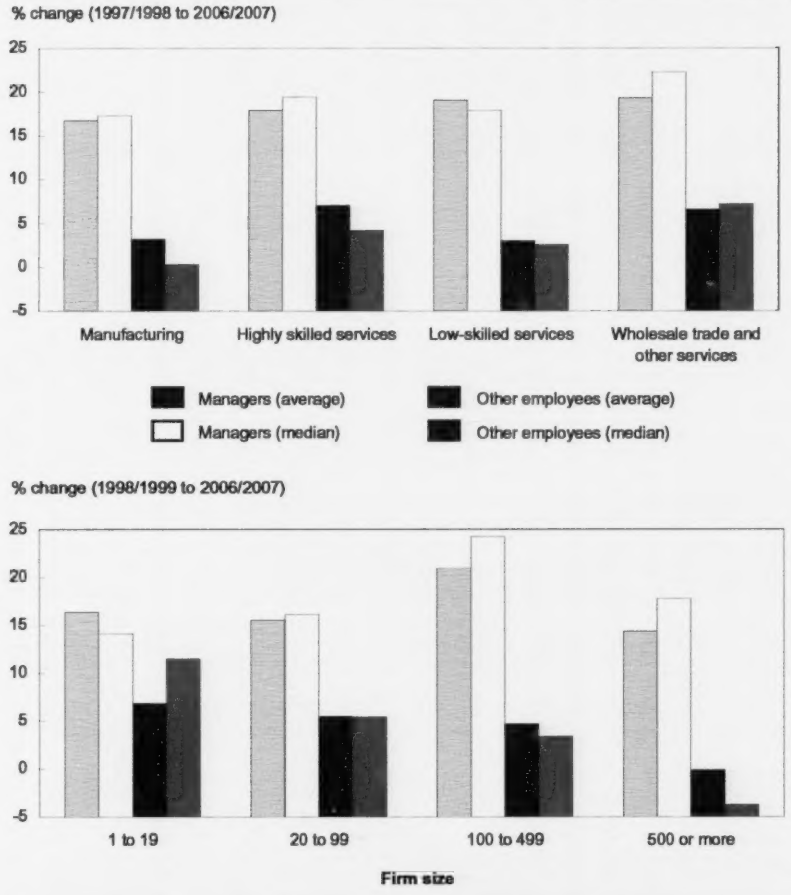
The proportion of manufacturing jobs paying less than $10 per hour fell by about 3 percentage points between 1997/1998 and 2006/2007. However, the different earnings trends by region had a clear impact on the evolution of low-paid employment in this

**Table 5 Hourly earnings in selected occupations in the private sector**

| | Mean | | | Median | | | |
|---|---|---|---|---|---|---|---|
| | 1997/1998 | 2006/2007 | Change | 1997/1998 | 2006/2007 | Change | Jobs in private sector in 2006/2007 |
| **Occupation** | 2002 $ | | % | 2002 $ | | % | % |
| Specialist managers | 25.09 | 30.89 | 23.1 | 23.02 | 29.03 | 26.1 | 2.8 |
| Other managers | 21.74 | 25.59 | 17.7 | 19.11 | 22.81 | 19.3 | 5.3 |
| Professional occupations in business and finance | 21.88 | 25.74 | 17.6 | 19.87 | 23.14 | 16.5 | 3.0 |
| Computer and information systems professionals | 24.32 | 27.78 | 14.3 | 23.23 | 26.95 | 16.0 | 2.2 |
| Engineers | 27.63 | 30.09 | 8.9 | 26.43 | 28.52 | 7.9 | 1.5 |
| Technical related to natural and applied sciences | 20.17 | 21.42 | 6.2 | 19.00 | 19.52 | 2.7 | 3.6 |
| Clerical | 14.27 | 14.22 | -0.3 | 13.25 | 13.48 | 1.7 | 10.6 |
| Assemblers and machine operators in manufacturing and labourers in processing, manufacturing and utilities | 15.06 | 15.15 | 0.6 | 13.92 | 13.79 | -1.0 | 8.3 |
| Supervisors in manufacturing | 20.94 | 20.66 | -1.3 | 20.35 | 19.81 | -2.6 | 1.0 |
| Construction trades | 18.05 | 18.45 | 2.2 | 17.03 | 17.50 | 2.8 | 2.6 |
| Cashiers, retail salespersons and sales clerks | 10.67 | 10.34 | -3.0 | 8.83 | 8.74 | -1.0 | 6.5 |
| Food and beverage service | 9.88 | 10.69 | 8.2 | 8.81 | 9.20 | 4.4 | 2.1 |
| Other sales and service | 12.39 | 12.82 | 3.5 | 10.43 | 10.83 | 3.8 | 17.0 |
| Other | 17.27 | 17.88 | 3.6 | 16.11 | 16.42 | 1.9 | 33.7 |
| **All private-sector jobs** | 16.40 | 17.34 | 5.7 | 14.48 | 15.05 | 3.9 | 100.0 |
| Managers | 22.79 | 27.41 | 20.3 | 20.59 | 25.05 | 21.7 | 8.1 |
| Other employees | 15.74 | 16.46 | 4.6 | 14.04 | 14.52 | 3.4 | 91.9 |

Source: Statistics Canada, Labour Force Survey, January to November.

**Chart F Earnings in the private sector increased more for managers than other employees in all industries and firm sizes**




Source: Statistics Canada, Labour Force Survey, January to November.

sector. Specifically, the share of manufacturing jobs paying less than $10 per hour fell by 5 percentage points or more in all provinces except Ontario and British Columbia. In these two, at least 10% of manufacturing jobs paid less than $10 per hour in 2006/2007, similar to the 1997/1998 period.

The incidence of low-paid employment changed little in low-skilled services. At the national level, the proportion of jobs paying less than $10 per hour amounted to 49% in 2006/2007, a slight decline from the 51% observed in 1997/1998. While most regions did not witness substantial changes in the incidence of low-paid employment in this sector of the economy, Alberta reduced its proportion by fully 12 percentage points.

In sum, whether trends are analyzed for all industries or for some specific sectors such as manufacturing and low-skilled services, the degree to which low-paid employment fell over the last decade differed markedly by province.

## Earnings of managers up sharply over the last decade

The greater earnings increase among highly paid employees than among those in the middle of the earnings distribution suggests that managers and professionals might have enjoyed stronger pay growth than other occupations (Table 5). In addition, the relatively strong performance of the CT sector (in terms of earnings) indicates that computer and information systems professionals might have fared better than other highly skilled workers such as engineers.

Between 1997/1998 and 2006/2007, average earnings of managers grew a solid 20%, four times the rate for other employees. Pay for specialist managers rose 23%, while other managers and professionals in business and finance saw an 18% increase in their paycheques.[8] Average earnings of computer and information systems professionals increased by 14%, compared with 9% for engineers. Median earnings of specialist managers, other managers, professionals in business and finance, and computer and information systems professionals—accounting for 13% of private-sector of employment grew between 16% and 26%.[9]

In contrast, earnings stagnated for about 26% of private-sector employment in 2006/2007. Clerical workers and manufacturing employees involved in blue-collar work or supervision tasks saw virtually no growth. Cashiers, retail salespersons and sales clerks also did not see their paycheques increase.

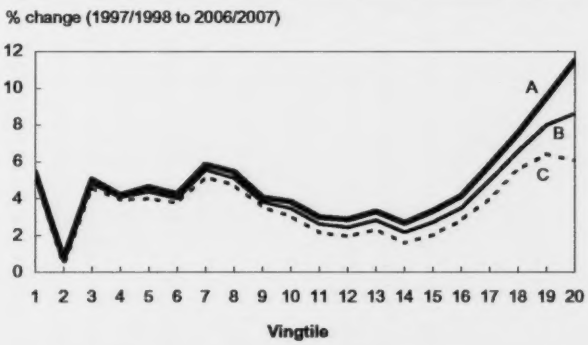
The strong growth in pay for managers was not driven simply by the economic boom observed in Alberta. Average earnings of managers grew 18% in the Atlantic provinces, 19% in Quebec and Ontario, 21% in Manitoba and Saskatchewan, 27% in Alberta and 15% in British Columbia. In contrast, other employees saw increases of 5% in the Atlantic provinces and Quebec, 3% in Ontario, 9% in Saskatchewan and Manitoba, 12% in Alberta and virtually zero in British Columbia. The faster wage growth of managers was also seen in all industries and for firms of all sizes (Chart F).[10]

Since the proportion of workers with a university degree increased more among managers (from 29% in 1997/1998 to 38% in 2006/2007) than among other employees (12% to 17%), the strong earnings growth of managers might have been driven mainly by differential increases in educational attainment. Multivariate analyses do not support this view. After controlling for age, education and seniority within the company, 80% of the difference persists.[11] Furthermore, 75% of the difference in growth rates remains after adding controls for industry (at the 4-digit level) and region. Taken together, these results indicate that the sharp earnings growth experienced by managers over the last decade was widespread and was not driven mainly by compositional effects.[12]

The strong earnings growth of managers had a substantial impact on the upper end of the earnings distribution. Between 1997/1998 and 2006/2007, hourly earnings among the top 5% of private-sector employees increased by 11.5%, compared with 3.6% for their counterparts in the middle of the distribution (vingtiles 9 to 11).

If average earnings of managers had increased by 12.5% (i.e. half way between the observed 20.3% and the 4.6% for other employees), earnings among the top 5% of private-sector employees would have increased by 8.6% only (Chart G), while earnings in the middle of the distribution would have barely changed, increasing by 3.3%. The difference in growth rates between the top 5% and those in the middle would then have decreased from 7.9 percentage points to 5.3 (i.e. about one-third could be explained).

**Chart G At least one-third of the earnings growth among the top 5% in the private sector can be accounted for by the strong growth for managers**




A: Observed changes in average earnings.
B: Changes in average earnings, if the average for managers had increased by 12.5% rather than 20.3%.
C: Changes in average earnings, if the average for managers had increased by 4.6% rather than 20.3%
Source: Statistics Canada, Labour Force Survey, January to November.

Furthermore, had average earnings of managers increased by the 4.6% rate of other private-sector employees, hourly earnings among the top 5% would have increased by only 6.1%, while those in the middle would have seen 2.9%. The difference between the top 5% and the middle would have decreased to 3.2 points, with about 60% being accounted for by the more rapid earnings growth of managers. In other words, managers' rapid earnings growth accounted for between 33% and 60% of the difference in growth rates between the top 5% and those in the middle of the distribution.

## Earnings growth not that different by education

Since earnings rose substantially in managerial and professional occupations in business and finance but stagnated in blue-collar manufacturing and clerical occupations, it might be assumed that they increased more among highly educated workers than among the less educated. However, for both men and women, under 35 years of age or aged 35 to 64, earnings growth did not differ much by education (Table 6).

**Table 6 Hourly earnings by education**

| | Mean | | | Median | | |
|---|---|---|---|---|---|---|
| | 1997/1998 | 2006/2007 | Change | 1997/1998 | 2006/2007 | Change |
| | 2002 $ | | % | 2002 $ | | % |
| **Men under 35** | | | | | | |
| Less than high school | 12.19 | 12.29 | 0.8 | 10.97 | 10.78 | -1.7 |
| High school graduate | 14.10 | 14.47 | 2.7 | 12.92 | 13.33 | 3.1 |
| Trades certificate or diploma | 16.84 | 17.93 | 6.5 | 16.11 | 16.68 | 3.5 |
| Post-secondary education | 15.93 | 16.54 | 3.8 | 14.66 | 15.12 | 3.2 |
| Bachelor degree | 20.55 | 21.58 | 5.0 | 19.49 | 20.22 | 3.8 |
| Graduate degree | 24.09 | 24.55 | 1.9 | 23.04 | 23.36 | 1.4 |
| **Men 35 to 64** | | | | | | |
| Less than high school | 17.23 | 17.13 | -0.6 | 16.56 | 16.10 | -2.8 |
| High school graduate | 20.08 | 19.67 | -2.0 | 19.30 | 18.38 | -4.7 |
| Trades certificate or diploma | 21.26 | 21.15 | -0.5 | 21.23 | 20.35 | -4.1 |
| Post-secondary education | 22.87 | 22.75 | -0.5 | 22.08 | 21.27 | -3.6 |
| Bachelor degree | 27.75 | 27.95 | 0.7 | 27.17 | 26.78 | -1.5 |
| Graduate degree | 31.46 | 30.78 | -2.2 | 31.18 | 30.05 | -3.6 |
| **Women under 35** | | | | | | |
| Less than high school | 9.59 | 9.60 | 0.1 | 8.33 | 8.17 | -2.0 |
| High school graduate | 11.67 | 11.63 | -0.4 | 10.33 | 10.11 | -2.1 |
| Trades certificate or diploma | 12.65 | 13.46 | 6.4 | 11.35 | 12.49 | 10.0 |
| Post-secondary education | 13.95 | 14.44 | 3.5 | 12.86 | 13.48 | 4.8 |
| Bachelor degree | 18.39 | 19.26 | 4.8 | 17.70 | 18.35 | 3.6 |
| Graduate degree | 21.51 | 22.44 | 4.3 | 20.88 | 21.82 | 4.5 |
| **Women 35 to 64** | | | | | | |
| Less than high school | 11.91 | 12.10 | 1.7 | 11.04 | 10.79 | -2.2 |
| High school graduate | 15.05 | 15.29 | 1.6 | 14.35 | 14.14 | -1.5 |
| Trades certificate or diploma | 14.89 | 15.51 | 4.2 | 14.12 | 14.32 | 1.5 |
| Post-secondary education | 18.05 | 18.58 | 2.9 | 17.06 | 17.11 | 0.3 |
| Bachelor degree | 23.41 | 23.78 | 1.6 | 23.28 | 22.75 | -2.3 |
| Graduate degree | 27.15 | 27.45 | 1.1 | 27.21 | 27.33 | 0.4 |

Source: Statistics Canada, Labour Force Survey, January to November.

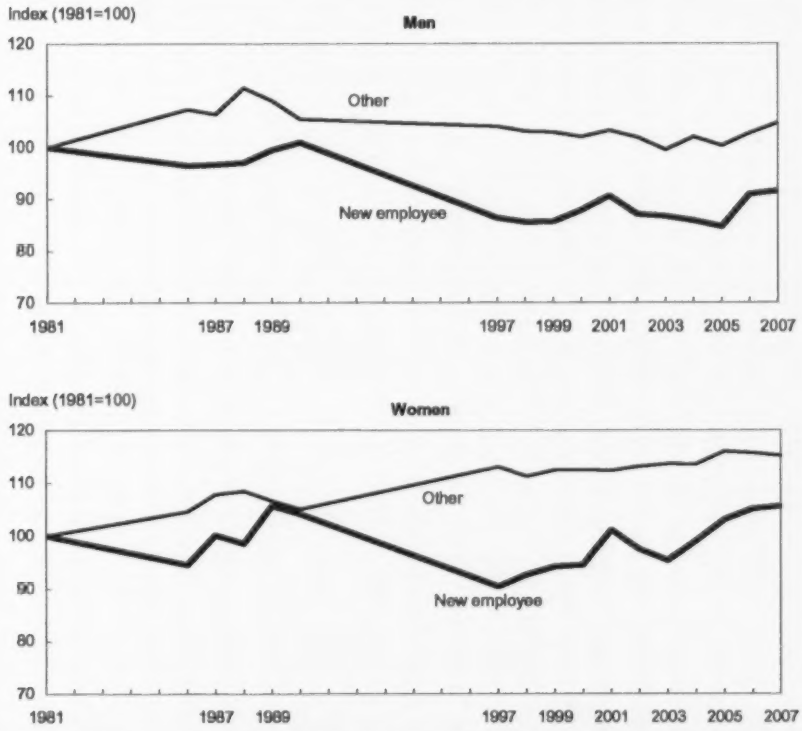
Men under 35 with a high school diploma or less saw their earnings increase by at most 3% (average or median), whereas those with a bachelor's or higher degree experienced pay increases that varied between 1% and 5%. Among men aged 35 to 64, average earnings remained virtually unchanged at all education levels while median wages fell between 2% and 5%.

Very similar patterns were seen for women. Those under 35 with a high school diploma or less saw average earnings stagnate or median earnings drop slightly. In contrast, those with a bachelor's degree had a slight increase of 4% to 5%. In this age group, women with a trades certificate did well, as their earnings grew between 6% and 10%. As for men aged 35 to 64, earnings growth varied very little by education among women of that age. Hence, the relatively strong growth in many industries in the upper ranges of the earnings distribution appears to have affected mainly the inter-occupational pay structure, rather than the returns to education.

## Earnings growth by age and seniority

Canada's unemployment rate fell from 9.1% in 1997 to under 6% in the last quarter of 2007—below 4% in Alberta. In this context, new entrants to the labour market might have enjoyed stronger earnings growth than other employees, as labour shortages could develop in some sectors. If so, earnings of young employees should have risen faster than those of their older counterparts.

**Chart H The earnings gap between newly hired employees and others widened during the 1990s for the 35-to-44-year-olds.**




Sources: Statistics Canada, Survey of Work History, 1981; Labour Market Activity Survey, 1986 to 1990; Labour Force Survey, March and September, 1997 to 2007.

And indeed, this is what happened. Between 1997/1998 and 2006/2007, earnings (average or median) of men under 35 grew at least 7% while those of their counterparts 35 to 54 either fell or rose by at most 4%. Median earnings of women under 35 also grew more than those of their counterparts aged 35 to 54. Higher earnings growth among men under 35 was seen not only in Alberta, but also in most other regions. The only exceptions were Ontario and British Columbia, where growth in average earnings did not differ much between the two age groups. For women, age differences within regions were generally less pronounced.

The strong labour market conditions in recent years also benefited some newly hired employees. Among workers aged 35 to 44, earnings of employees with two years of seniority or less grew at least 5 percentage points faster than those of their counterparts with greater seniority (Chart H). Nevertheless, earnings of newly hired employees ended up growing more slowly than those of other employees since the early 1980s.[13]

While the reasons underlying this pattern are unclear, one explanation is that, since the 1980s, Canadian employers may have responded to technological changes and more intense competition within industries and from abroad by cutting pay for newly hired workers while maintaining it for workers with greater seniority. They might have done so in order to maintain morale and productivity among their core workers.

## Summary

Numerous changes to the economy have helped alter the pay structure in Canada over the last decade. As expected, pay rates have risen in Alberta, especially since 2004. In Ontario and Quebec, earnings in manufacturing did not fall substantially, despite sharp decreases in employment in recent years. Average earnings in the CT sector ended up rising 12% in real terms, after the turbulence of the 2001 to 2004 period.

In virtually all industries and regions, pay rates in the upper half of the distribution grew increasingly larger toward the top of the scale. This suggests that earnings dispersion likely increased in the upper half of the distribution over the last decade.

Not all provinces have been equally able to reduce the incidence of low-paid employment. Between 1997 and 2007, the proportion of jobs paying less than $10 per hour fell markedly in all provinces except Newfoundland and Labrador,

Ontario and British Columbia. In manufacturing, the proportion of low-paid jobs dropped everywhere except Ontario and British Columbia.

Of all workers, managers saw the greatest improvement in their pay rates since the late 1990s. Their earnings grew sharply in most industrial groups and in firms of all sizes. In contrast, blue-collar workers in manufacturing, clerical employees and salespersons in retail trade experienced virtually no earnings growth.

Surprisingly, the strong earnings growth for managers and some professionals in business and finance occupations did not translate into sharp increases among highly educated workers. For both men and women, returns to education did not change much over the last decade.

However, young workers and some newly hired employees did fairly well over the past ten years. In most regions, earnings growth for men under 35 surpassed that of their counterparts aged 35 to 54. Yet, within age groups, earnings of newly hired employees ended up growing more slowly than those other employees over the 1981 to 2007 period.



## Notes

1. Throughout the study, hourly earnings are expressed in 2002 dollars using province-specific consumer price indexes (CPI). Since the CPI is a measure of price change from one time period to another, rather than a measure of price levels, it cannot be used to indicate differences in price levels between provinces. For this reason, interprovincial differences in real earnings (or in the share of jobs paying, say, less than $10 per hour) in a given year do not necessarily fully measure interprovincial differences in the purchasing power provided by one dollar of earnings in that year.

2. The pattern for men is consistent with Figure 4 of Lemieux (2007), which shows that changes in male real earnings by percentile displayed a U-shape between 1989 and 2004 in the United States. Note that the proportion of private-sector employees who are union members or covered by a collective agreement fell from 22% in 1997 to 19% in 2007 in Canada. For the whole economy, the corresponding numbers are 35% and 33%, respectively.

3. The six major industry groups are primary industries and construction, manufacturing, highly skilled services, low-skilled services, wholesale trade and other services, and public services. Highly skilled services [based on the North American Industry Classification System (NAICS) of 2002] comprise transportation and warehousing; information and cultural industries; finance and insurance; real estate and rental and leasing; professional, scientific and technical services; management of companies and enterprises; and administrative and support, waste management and remediation services. Low-skilled services comprise retail trade and accommodation and food services. In 2007, employment was distributed as follows: primary industries and construction (4%); manufacturing (15%); highly skilled services (24%); low-skilled services (17%); wholesale trade and other services (17%); and public services (24%).

4. Whether this sharp wage growth is observed for highly educated workers or for those employed in managerial and professional occupations is examined later in the article.

5. Growth in median manufacturing earnings differed even more, as Alberta enjoyed a 9% increase while British Columbia suffered a 10% decrease.

6. The CT sector comprises the following NAICS industries: commercial and service industry machinery; computer and peripheral equipment; communications equipment; audio and video equipment; semiconductor and other electronic components; navigational, measuring, medical and control instruments; computer and communications equipment and supplies wholesaler-distributors; software publishers; wired telecommunications carriers; wireless telecommunications carriers (except satellite); telecommunications resellers; satellite telecommunications; cable and other program distribution; other telecommunications; Internet service providers; web search portals; data processing, hosting, and related services; computer systems design and related services; and electronic and precision equipment repair and maintenance. It amounted to 4% of total employment in 2007.

7. More than half of the earnings growth in the CT sector seems to be related to changes in the characteristics of the workforce. After controlling for age, seniority (through quadratic terms in age and seniority) and education and interacting these variables with sex, regressions of log earnings on these regressors and a year effect (a binary indicator set to 1 in 2007, 0 in 1997) suggest that average earnings rose 5% between 1997 and 2007.

8. Specialist managers comprise administrative services managers; managers in engineering, architecture, science and information systems; sales, marketing and advertising managers; and facility operation and maintenance managers. Professional occupations in business and finance comprise auditors, accountants and investment professionals, and human resources and business service professionals.

9. Similar results are obtained using weekly earnings.

10. Average earnings of other employees rose 6% in primary industries and construction and 1% in public services. The corresponding numbers for managers in these two sectors were 26% and 12%, respectively. Since firm size was not available from the LFS in 1997, Chart F shows growth by firm size from 1998/1999.

11. Adding controls for age, seniority (through quadratic terms in age and seniority) and education (and interacting these variables with sex) to regressions that initially include a binary indicator for managerial occupations, a period effect (a binary indicator of 1 in 2006/2007, 0 in 1997/1998) and an interaction term between the two reduces the value of this interaction term from 0.143 to 0.116.

12. Between 1998/1999 and 2006/2007, log earnings of managers grew 11 points faster than those of other employees. Three-quarters of that difference remains after controlling for firm size (4 categories), industry (4-digit level), region, age, education and seniority.

13. Since the surveys used in Chart H differ somewhat in terms of their content and the procedures used to impute earnings and to detect outliers, it is difficult to make definitive statements regarding the magnitude of real wage growth since 1981. Nevertheless, comparisons of the evolution of relative earnings between groups (e.g. between newly hired employees and other employees) remain meaningful. As Morissette and Johnson (2005) showed, within age groups, earnings of newly hired male and female employees fell substantially relative to those of others during the 1990s.

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